WHAT IS CLAIMED IS:

1. A radiation sensor comprising:

a housing, an attenuator with at least one cavity for attenuating optical radiation, and a detector.

2. The radiation sensor as descried in claim 1, wherein the housing has a housing lid having an aperture with a window.

3. The radiation sensor as claimed in claim 2, wherein said window comprises a sapphire plate.

4. The radiation sensor as claimed in claim 3, wherein said sapphire plate has with a first portion with a diameter equal to a diameter of said window and a second portion with a diameter greater than the diameter of said window.

5. The radiation sensor as claimed in claim 2, wherein said window comprises a sapphire positive lens.

6. The radiation sensor as claimed in claim 1, wherein said attenuator has several cavities and means for transferring radiation from a first cavity to at least one secondary cavity inside of the attenuator.

7. The radiation sensor as claimed in claim 6, wherein each of the secondary cavities directs scattered and attenuated light to a respective detector with a different spectral range of sensitivity.

8. The radiation sensor as claimed in claim 6, wherein said means for transferring radiation includes a semi transparent part of the attenuator.

9. The radiation sensor as claimed in claim 6, wherein said means for transferring radiation includes an opening between the first and secondary cavities in the attenuator.

10. The radiation sensor as claimed in claim 6, wherein said attenuator has a body made of fluoropolymer or metal, and the first cavity has an opening adjacent to the window, and the secondary cavity has an opening adjacent to the detector.

11. The radiation sensor as claimed in claim 10, wherein said means for transferring radiation includes a semi transparent part of the attenuator body.

12. The radiation sensor as claimed in claim 10, wherein said means for transferring radiation includes an opening between the first and secondary cavities in the attenuator body.

13. The radiation sensor as claimed in claim 10, wherein each of the first and secondary cavities is cylindrical , and wherein an opening adjacent to the window and an opening adjacent to the detector are located on the same side of the attenuator.

14. The radiation sensor as claimed in claim 10, wherein a moveable cylindrical insert is placed inside the first cavity to adjust the amount of radiation passing from the first cavity to the secondary cavity.

15. The radiation sensor as claimed in claim 1, wherein said housing has a housing lid having a first aperture with a first window, and said housing has an housing aperture with a second window.

16. The radiation sensor as claimed in claim 15, wherein said attenuator has several light scattering cavities and means for transferring radiation from a first cavity to at least one secondary cavity inside of the attenuator and the first cavity has two openings adjacent to the first and second windows.

17. The radiation sensor as claimed in claim 1, wherein a RS 232 means and RS 232 connector are placed in said housing.

18. The radiation sensor as claimed in claim 1, wherein said detector comprises at least one of a silicon carbide UV A photodiode, a silicon carbide UV B photodiode, a silicon carbide UV C photodiode, a GaAsP (UV A + B) photodiode, a GaAsP (UV + visible) photodiode, an AlGaN UV photodiode, and a GaN UV photodiode.

19. The radiation sensor as claimed in claim 6, wherein a UV Long Pass Filter is placed inside the secondary cavity and in front of said detector.

20. The radiation sensor as claimed in claim 19, wherein the UV Long Pass Filter comprises a polyester plate, and said detector comprises a GaAsP UV A + B photodiode.

21. The radiation sensor as claimed in claim 20, wherein said polyester plate is 1 mm to 4 mm thick.

22. The radiation sensor as claimed in claim 19, wherein the UV Long Pass Filter comprises a polycarbonate plate, and said detector comprises a GaAsP photodiode for a visible light range.

23. The radiation sensor as claimed in claim 22, wherein said polycarbonate plate is 1 mm to 4 mm thick.

24. The radiation sensor according to claim 1, wherein the detector accommodates an average signal with a maximum regulation to give a current not more than 0.8-1.0 mA for maximum irradiance on the input.

25. The radiation sensor according to claim 1, further comprising a temperature sensor.

26. The radiation sensor according to claim 1, further comprising a preamplifier, an amplifier, and a controller with an analog to digital converter.

27. The radiation sensor according to claim 1, further comprising one or several push buttons, memory, and a display.

28. The method of sensing UV radiation comprising the steps of:

providing a UV detector and a radiation attenuator with at least two cavity for attenuating optical radiation and means for transferring radiation from a first cavity to at least one secondary cavity inside of the attenuator;

adjusting said means for transferring radiation to have a predetermined level of radiation on a sensing area of the detector detecting an attenuated radiation with the detector.

29. The method of sensing UV radiation according to the claim 28, further comprising the steps of:

providing a temperature sensor for measure a detector temperature;

measuring and storing a total accumulative dose of radiation measured by the detector since last calibration; and

correcting the detector due to aging caused by the total accumulative dose and the detector temperature.

30. The method of sensing UV radiation according to the claim 29, further comprising a step of displaying a result after the correcting step.

31. The method of sensing UV radiation according to the claim 28, wherein the adjusting step involves adjusting and calibrating the detector accommodates an average signal with a maximum regulation to give a predetermined current.

32. The method of sensing UV radiation according to the claim 28, further comprising a step of optically filtering an attenuated radiation with a plastic plate.

33. An optical attenuator comprising:

an attenuator body with at least one cavity for attenuating optical radiation, said cavity having an entrance with one multi-stage input opening or plural input openings; and

means for transferring radiation inside of the attenuator body and then to an external detector.

34. The optical attenuator as claimed in claim 33, wherein said means for transferring radiation includes a semi transparent part of the attenuator body.

35. The optical attenuator as claimed in claim 33, wherein said means for transferring radiation including an opening between a first cavity and at least one secondary cavity in the attenuator body.

36. The optical attenuator as claimed in claim 35, wherein each of the secondary cavities directs scattered and attenuated light to a respective detector with a different spectral range of sensitivity.

37. The optical attenuator as claimed in claim 35, wherein said attenuator body is made of fluoropolymer or metal, the first cavity has an input opening with a window, and the secondary cavity has an output opening towards the detector.

38. The optical attenuator as claimed in claim 36, wherein each of the first and secondary cavities is cylindrical , and said input opening with the window and said output opening towards the detector are located on the same side of the attenuator body.

39. The optical attenuator as claimed in claim 36, wherein a moveable cylindrical insert is placed inside the first cavity to adjust the amount of radiation passing from the first cavity to the secondary cavity.

40. The optical attenuator as claimed in claim 33, wherein each of said plural input openings has a different diameter to accept radiation guides of different diameters to bring a radiation inside the entrance cavity.

41. The optical attenuator as claimed in claim 33, wherein the multi-stage input opening has sections of different diameters along an optical path therein to accommodate radiation guides having different diameters.